Drainage

***Overview**: The Drainage section of Chapter 3 includes discussion of:*

- *Thornton Creek planning activities;*
- *Relationship of Northgate Plan guidelines to current drainage requirements; and*
- *Thornton Creek daylighting issues.*

SUMMARY OF POLICY AND IMPLEMENTATION GUIDELINES

The intent of this policy and guideline is: to protect Thornton Creek, reduce potential runoff into the creek, and seek to restore the creek for aquatic habitat and improve its overall drainage capabilities. The specific details of the implementation guidelines are oriented to ensuring proper review of drainage control plans and a high level of protective measures during development to prevent degradation of the natural drainage system.

Policy 14 of the Northgate Plan is: *"Reduce potential runoff into Thornton Creek, and restore the creek to enhance aquatic habitat and absorb more runoff."* The policy has one implementation guideline with eight parts that describe drainage control facility requirements and construction practices that will lead to reduction of potential runoff into Thornton Creek. This policy is intended to be a basis for use of SEPA authority. The eight parts of I.G. 14.1 are summarized as follows:

A. City approval of drainage discharge locations is required for substantial development, and adoption of rules specifying criteria, guidelines, and standards for determining discharge points.

B. The design storm used to determine runoff rates shall be the 25-year storm, with adoption of rules for calculation methods to determine required storage volume.

C. Maintenance of drainage control facilities is the responsibility of the property owner or responsible party. The City has authority to enter properties for inspection of drainage facilities and may require owner/responsible party to provide a periodic maintenance report.

D. Infiltration systems are encouraged where there are no adverse conditions.

E. Substantial development disturbing one acre or more shall submit an erosion and sediment control plan with permit applications, including provisions for soil stabilization by use of best management practices (BMPs).

F. Topsoil stockpiles should be covered, cleared/graded areas should be re-seeded immediately after rough grading, and sediment control measures must be used to protect natural water courses from damage.

G. Use of erosion control techniques is required on sites less than one acre, to prevent soil loss from development sites.

H. Any major changes to the natural drainage basin that would eliminate detention should be prevented, if possible.

ACTIONS TO DATE

SPU has spent over $9 million in the Thornton Creek watershed on planning and constructing drainage improvements since 1995, and has dedicated over $5 million for flood control and drainage improvements along Thornton Creek over the next few years. Integrated improvements to both prevent flooding and improve creek habitat are addressed in the Drainage Capital Improvement Program. In 1997, Seattle Public Utilities (SPU) completed construction of the first phase of wetlands at the north end of the North Seattle Community College (NSCC) campus and completed construction of a four acre-foot detention pond in the golf course along the Littles Creek tributary. In 1998, the Meadowbrook Pond, a four acre-foot detention pond within the Thornton Creek watershed, was completed.

Over the past three years, SPU has collaborated with the community to develop a Thornton Creek Watershed Action Plan ($400,000 budget) and has conducted studies of the watershed hydrology. Last year, SPU's Surface Water Quality team sampled fecal coliform and dissolved oxygen in the creek and initiated a water pollution source control program. Currently, SPU is developing additional Best Management Practices regarding stormwater runoff to respond to listing of chinook salmon as a threatened species under the ESA. Stormwater from a section of Interstate 5 in the Northgate area is being treated with a device recently installed in cooperation with WSDOT.

The City has been addressing a cluster of issues related to Thornton Creek drainage for several years, including reducing flooding, increasing detention, improving fish habitat, restoring creeks, and studying the hydrology of the area in order to plan more carefully how to address these issues in the future. NSCC, WSDOT and several local community groups have conducted projects and work parties combining stormwater management, creek and wetland habitat restoration in the Northgate area. DPR and SPU have purchased property, worked with the community to develop restoration plans and activities, and worked with local schools to develop and continue environmental education programs related to the wetlands and Thornton Creek. The City Office of Environmental Management (OEM) has developed and is training City staff to use new Landscape & Grounds Management Guidelines specifically providing for environmental stewardship on City-owned land. Work is underway to modify the management practices of the City's golf courses to improve water quality in Seattle's creeks for aquatic habitat.

The Thornton Creek Watershed Action Plan Recommendations are due to be completed for City Council review in 2000. This plan is being developed by the Thornton Creek Watershed Management Committee, led by Seattle Public Utilities, with funding from the State Department of Ecology. The Thornton Creek Watershed Action Plan will provide significantly more information and a prioritized implementation plan for the watershed, and could be viewed as an implementation plan for Policy 14 in the Northgate Comprehensive Plan.

Thornton Creek channel, south of NE 104th Street, east of 5th Avenue NE.

Public bridge across Thornton Creek just east of 5th Ave. NE, north of NE 103rd St.

CITIZEN COMMENTS

- Citizens have expressed extensive interest in protecting and enhancing Thornton Creek drainages to improve habitat values, aesthetic quality and passive recreation values, and safely accommodate drainage volumes.
- Citizens noted the importance of the Thornton Creek natural areas as an environmental resource, and wondered how environmental values are built into the Northgate Plan.
- Several citizens advanced the concept of "daylighting" a new segment of Thornton Creek by replacing the drainage functions of an existing culvert under the south lot of the Northgate Mall property with a newly created open stream segment intended to have habitat, aesthetic and recreational values. This is the subject of a lawsuit brought by the "Thornton Creek Legal Defense Fund."
- Some citizens noted interest in drainage issues as they pertain to Thornton Creek and wetland areas, and interest in the potential for using infiltration-oriented drainage control facilities rather than facilities that would release runoff to Thornton Creek.

DISCUSSION

Relationship to Current Stormwater Regulations

SPU indicates the City's current Stormwater, Drainage and Grading Control Ordinance and other drainage-related requirements are at least as stringent as those discussed in the Northgate Plan, and in some cases are more stringent than those in the Northgate Plan. Guidelines 14.1.A, B, C, D, F and H of the Northgate Plan are comparable to current requirements. Guidelines 14.1.E and G are less stringent than current requirements of the drainage code.

Regarding I.G. 14.1.A, the City does have regulations in the Side Sewer Code and Director's Rules that provide criteria for determining the discharge point. These regulations generally relate to distances from the nearest drainage facility, such as storm drains or combined sewers. Properties are examined on a case-by-case basis to determine what kind of conveyance system serves the property and a decision is made on the most appropriate discharge point.

The language in I.G. 14.1.B creates slight uncertainty. It requires that the 25-year storm should be the design storm used to determine the *runoff rate*. The Northgate Plan could more accurately follow the phrasing of the City's current Stormwater, Drainage and Erosion Control requirement in SMC 22.802, which notes that the design storm *"used to determine detention volume necessary to obtain the required discharge rate shall be"* the 25-year storm. As another clarification, the current drainage code requires drainage systems to be designed for the 2-year storm (for erosion control purposes) as well as the 25-year storm (for flood prevention purposes). Although these details could be better specified in the Northgate Plan text, SPU staff believe text changes to the Plan are not essential, because other drainage/erosion control requirements will continue to be required for new development.

The current codes require new development to provide drainage control and treatment systems that adequately protect downstream habitat and natural drainage capabilities. This includes future development projects contemplated for the Mall property by the Mall's GDP. The City's codes provide water quality and drainage control protection that, in SPU's opinion, meet or exceed Washington State Department of Ecology requirements. SEPA review of individual projects affords the City the opportunity to require additional measures that further mitigate identified significant adverse impacts not fully addressed by minimum code requirements.

Daylighting Concept for Extension of Thornton Creek

The Northgate Plan's drainage policy and implementation guideline text does not state that new segments of Thornton Creek should be created, an idea endorsed by several citizens for the south lot of the mall site. The policy indicates, "…*restore the creek to enhance aquatic habitat and absorb more runoff."* This concept appears to refer to restoration in existing natural segments of the creek that would enhance habitat values and improve natural hydrologic capabilities. Interpreting this as promoting construction of new stream segments on private property introduces concepts that were not articulated in the existing Northgate Plan. The implementation guidelines address on-site drainage systems and control of construction impacts, which are preventive measures that help avoid or minimize impacts of new development on natural creek segments.

Some citizens have characterized the potential for fish habitat and drainage control benefits of a daylighted drainage channel (e.g., an artificial creek segment). The physical feasibility and overall level of environmental/fisheries benefit that could be derived from a daylighted drainage channel are debatable. Investments in improving other downstream locations in Thornton Creek would likely generate more benefit to natural fisheries habitat. The Northgate Mall GDP did not include a daylighted drainage channel, and the City cannot require the Northgate Mall GDP to include this feature.

Measuring Progress

For this review, little information was available to characterize how new development in the Northgate area since 1993 has impacted Thornton Creek. It would be relatively difficult to identify impacts of recent development, due to its scattered locations and relatively limited changes in impervious surface coverage. Impervious surface coverage and runoff volumes likely increased in the area, due to projects such as the new parking lot at North Seattle Community College and the Windermere Real Estate building (formerly undeveloped tracts).

City staff are preparing or managing studies that will provide considerable information on natural conditions, including:

- a Thornton Creek Watershed Characterization Report and Water Quality Assessment;
- a hydrology study of the Thornton Creek system; and,
- a Thornton Creek Watershed Action Plan.

The Watershed Action Plan will comprehensively address drainage improvements to the overall Thornton Creek system. Along with recent drainage improvement projects, planned future improvements will further address identified drainage issues in the Thornton Creek system.

The Mall GDP proposes to install a combined wetpond and detention facility that would substantially reduce peak flow volumes into Thornton Creek from the Mall site (which currently does not have detention or water quality treatment facilities), and provide water quality treatment intended to meet State Department of Ecology standards. The GDP indicates that runoff from the existing Mall site as well as from the south lot *may* be routed to the proposed wetpond/detention facility; SPU staff indicate that all future development on the Mall site would be required to provide adequate drainage control facilities, whether at the proposed wetpond/detention facility or an additional facility. The mall owners will also consider the use of runoff infiltration facilities during the design phase of individual projects. The revised GDP decision issued in late 1999 further discusses the proposal's consistency with the guidelines of this drainage policy. However, given the Superior Court ruling in Spring 2000 (and pending appeal of this ruling by the City), there are uncertainties in the status of drainage planning on the GDP site.

SPO RECOMMENDATIONS

- **Seattle Public Utilities should continue watershed planning efforts and implement projects to enhance the natural drainage and habitat functions of the Thornton Creek watershed.**